IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Ryozo NISHIKAWA, et al.
Serial No.: 10/522,915
Filed: May 18, 2005
For: High-durability photocatalyst film and Structure having photocatalytic functions on surface

DECLARATION

Honorable Commissioner of Patent and Trademarks
Washington, D.C. 20231

Sir:

I, Naoki TANAKA, c/o UBE NITTO KASEI CO., LTD., 1-1, Yabutanishi 2-chome, Gifu-shi, Gifu 500-8386 Japan declare that:

1. I am one of the inventors of the above-identified application and am familiar with the subject matter disclosed in said application.

2. In order to demonstrate an effect of methyl isobutyl ketone (MIBK) on PMMA (solubility of PMMA in MIBK) with regard to which the Examiner points out that Applicant has not submitted objective evidence, I carried out the following experiment.

Experiment:

1. Tested samples

(1) As a PMMA described in WO'523, ACRYLITE L (thickness 2 mm) supplied by Mitsubishi Rayon Co., Ltd. was used and it was cut to form a PMMA plate.

(2) A crosslinking acrylic resin used for surface-coating an acrylic resin (e.g., PMMA) or polyethylene terephthalate (PET) substrate in the present claims 1 and 2 was prepared as follows.

A solution of 35 g of an ultraviolet absorbent primer ("U Double UV-G301", supplied by Nippon Shokubai Kagaku Co., Ltd.) in 26 g of butyl acetate and a solution of 4.44 g of an isocyanate curing agent (SUMIDUR N3200, supplied by Sumitomo-Bayer Urethane Co., Ltd.) in 13.2 g of butyl acetate were vigorously mixed for 10 minutes, and the mixture was poured into a PFA dish (internal diameter 100 mm) in such an amount that a cured resin was to have a thickness of 2 mm. The dish with a resin in it was placed and maintained in a fine oven at 80°C for 24 hours, to cure the resin. Thus a plate of crosslinked acrylic resin was prepared.

2. Pulverization

Each of the above plates prepared in (1) and (2) was separately pulverized as follows. Each plate was immersed in liquid nitrogen and then finely pulverized with a hammer. The pulverized product was subjected to sieve classification with a mesh sieve having a sieve opening of 4 mm, and pulverized pieces having a size of about 4 mm or less, which had passed the mesh sieve, were collected. The collected pieces were dried at 50°C for 2 hours.

3. Conditions for dissolving test

Each of the pulverized samples obtained in the above 2 was tested its solubility as follows.

A glass container was charged with 2 g of a pulverized sample and 18 g of MIBK and the mixture was stirred with a stirrer tip at 20°C for predetermined time periods. Then, the glass container with the stirred sample in it was allowed to stand for 1 hour. Ten grams of a supernatant was weighed with a precision scale, and the obtained supernatant was charged into a glass container. The supernatant was dried in a fine oven at 120°C until MIBK was completely volatilized. The resultant residue was dried at room temperature in a vacuum desiccator for 3 hours. The resultant residue (dissolved resin) was measured for a weight with a precision scale.

4. Results

Weight (g) of residue

	Time period (hour) for immersion and stirring		
	0 hr	18 hrs	41 hrs
(1) PMMA plate	0	0.137	0.262
(2) Crosslinking acrylic resin plate	0	0.001	0.001

5. Conclusion

The experimental data above clearly show that PMMA used in WO'523 is easily soluble in MIBK, while the crosslinking acrylic resin used in the present claims 1 and 2 is hardly soluble in MIBK.

The undersigned declarant declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and

the like so made are punishable by fine or imprisonments, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated this 20 th day of February 2007

Naoki Tanaka

Naoki TANAKA